

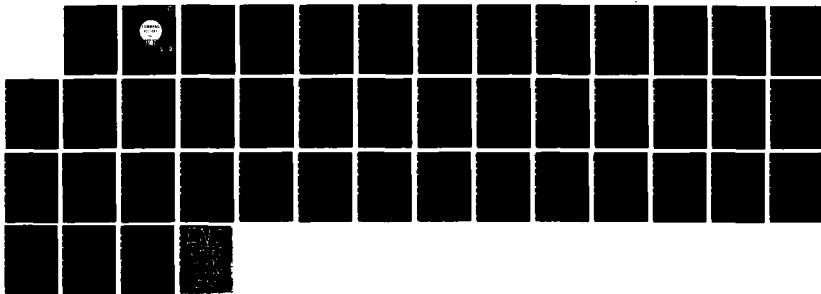
AD-A195 243

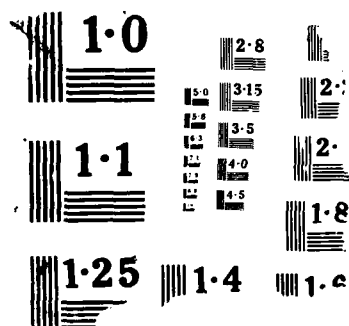
COMMAND HISTORY FOR 1987(U) NAVY PERSONNEL RESEARCH AND 1/1  
DEVELOPMENT CENTER SAN DIEGO CA C SCHEIFERS ET AL.  
APR 88 NPRDC-AP-88-4

UNCLASSIFIED

F/G 5/9

NL





DTIC FILE COPY

# Navy Personnel Research and Development Center

San Diego, CA 92152-6800 AP 88-4 April 1988



2

AD-A195 243

## COMMAND HISTORY for

# 1987

DTIC  
ELECTE  
MAY 10 1988  
S D  
SH

Approved for public release; distribution is unlimited.

88 - 00 094

**Command History for 1987**

Compiled and reviewed by  
Carmen Scheifers  
Rachel Dalton

Approved by  
Ted M. I. Yellen

Released by  
B. E. Bacon  
Captain, U.S. Navy  
and

J. S. McMichael  
Technical Director

Approved for public release;  
distribution is unlimited.

Navy Personnel Research and Development Center  
San Diego, California 92152-6800

# REPORT DOCUMENTATION PAGE

1a REPORT SECURITY CLASSIFICATION UNCLASSIFIED		1b RESTRICTIVE MARKINGS	
2a SECURITY CLASSIFICATION AUTHORITY		3 DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited.	
2b DECLASSIFICATION/DOWNGRADING SCHEDULE			
4 PERFORMING ORGANIZATION REPORT NUMBER(S)  NPRDC AP 88-4		5 MONITORING ORGANIZATION REPORT NUMBER(S)	
6a NAME OF PERFORMING ORGANIZATION Navy Personnel Research and Development Center	6b OFFICE SYMBOL (If applicable) Code 23	7a. NAME OF MONITORING ORGANIZATION	
6c ADDRESS (City, State, and ZIP Code)  San Diego, CA 92152-6800		7b. ADDRESS (City, State, and ZIP Code)	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION	8b OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c ADDRESS (City, State, and ZIP Code)		10 SOURCE OF FUNDING NUMBERS	
		PROGRAM ELEMENT NO	PROJECT NO
		TASK NO	WORK UNIT ACCESSION NO
11 TITLE (Include Security Classification)  Command History for 1987			
12 PERSONAL AUTHOR(S)			
13a TYPE OF REPORT Interim	13b TIME COVERED FROM 87 Jan TO 87 Dec	14 DATE OF REPORT (Year, Month, Day) 1988 April	15 PAGE COUNT 42
16 SUPPLEMENTARY NOTATION			
17 COSATI CODES		18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP		
05			
19 ABSTRACT (Continue on reverse if necessary and identify by block number)			
<p>This report lists NPRDC's mission, leadership assignments, organization, CO/TD biographies, key personnel, chronology of 1987 events, history of the Center, resources (financial, manpower, facilities), R&amp;D program, and publications and presentations.</p>			
20 DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT <input type="checkbox"/> DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a NAME OF RESPONSIBLE INDIVIDUAL T. M. I. YELLEN		22b TELEPHONE (Include Area Code) (619) 533-7732	22c OFFICE SYMBOL Code 23

# CONTENTS

	Page
INTRODUCTION .....	1
Mission .....	1
Leadership Assignments .....	1
ORGANIZATION .....	1
Commanding Officer/Technical Director Biographies .....	3
Key Personnel .....	5
Chronology of 1987 Events .....	6
HISTORY OF THE CENTER .....	23
RESOURCES .....	24
Financial .....	24
Manpower .....	25
Facilities .....	26
R&D PROGRAM .....	27
Publications and Presentations .....	31
DISTRIBUTION LIST .....	41

## LIST OF FIGURES

1. NPRDC reporting relationships .....	2
2. NPRDC 1987 organization .....	2
3. FY87 funds--actual \$35.312M .....	24
4. Funds by category and type .....	24
5. Distribution of funds .....	25
5. NPRDC personnel .....	25



Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

## INTRODUCTION

### Mission

The mission of the Navy Personnel Research and Development Center (NPRDC) during 1987 was to be the principal Navy RDT&E center for manpower, personnel, education, training, and human factors, and for providing technical support to the Chief of Naval Operations in these areas.

The Navy Personnel Research and Development Center was established at San Diego on 1 May 1973. This was an initial step toward integrating the Navy's manpower and training research to improve the management, administration, selection, classification, training, performance, and retention of Navy personnel. The Center was comprised of assets from the Navy Personnel and Training Research Laboratory, San Diego; the Naval Personnel Research and Development Laboratory, Washington, DC; and the Personnel Research Division of the Bureau of Naval Personnel. All of these components were then subsequently disestablished.

### Leadership Assignments

Personnel administration and organizational performance; human performance; manpower management; human factors support to naval ships, ship systems, and Marine Corps systems (other than aircraft); and instructional technology.

## ORGANIZATION

The Center's reporting relationships are depicted in Figure 1. To increase our responsiveness to pressing Navy needs as well as to exploit technological opportunity, NPRDC was reorganized in 1987 into six departments, each concentrating on a major area of mission function. The structure is as follows (NPRDC's organization chart is represented in Figure 2):

<u>Departments</u>	<u>Product Areas</u>	<u>Facilities</u>
Manpower Systems Personnel Systems Testing Systems	Manpower and Personnel	Manpower and Personnel Computing Facility
Training Technology Training Systems	Training	Training Research Computing Facility
Human Factors	Human Factors Human Resources Productivity	Systems Simulation Facility Command Systems Facility

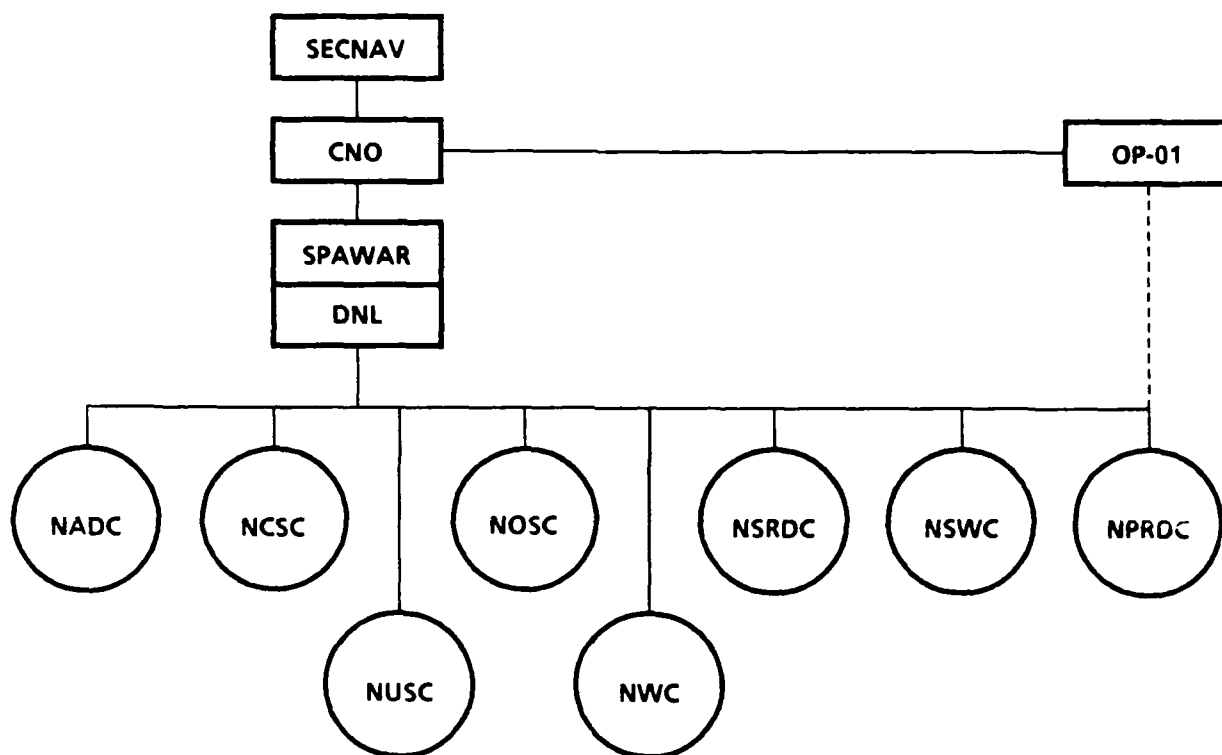


Figure 1. NPRDC reporting relationships.

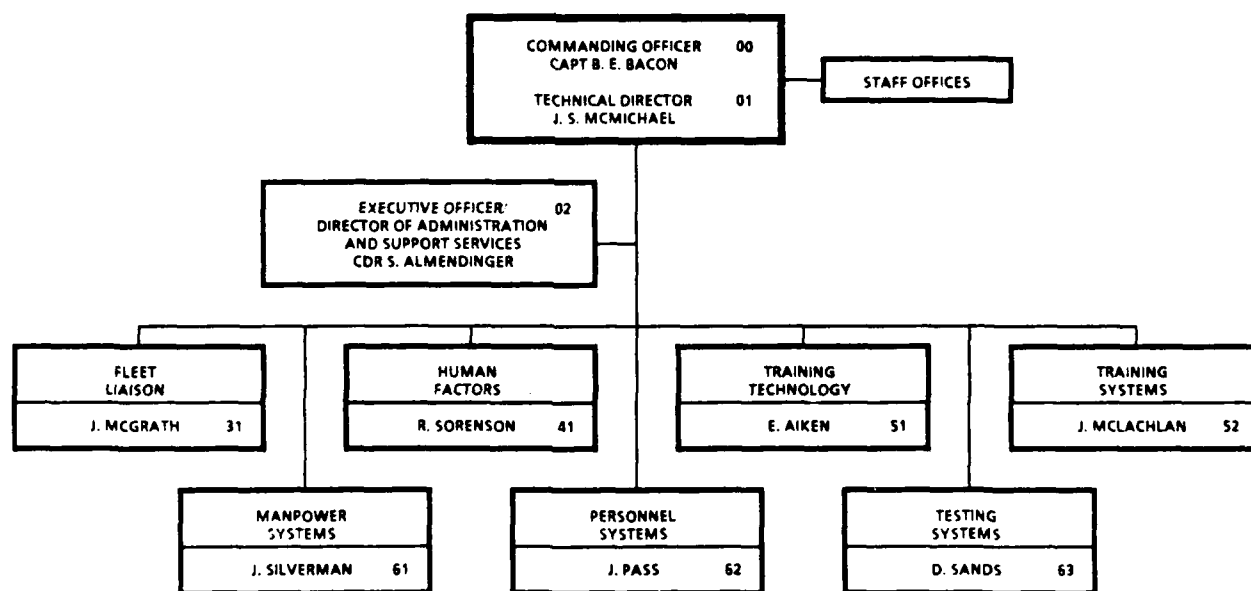


Figure 2. NPRDC 1987 organization.



### Commanding Officer/Technical Director Biographies

**Captain Barton E. Bacon III** assumed his present duties as Commanding Officer, NPRDC in June 1986.

Captain Bacon graduated from the University of Washington, Seattle, in 1959 and entered the Navy as an Aviation Officer Candidate at Pensacola, Florida. He was commissioned an Ensign in 1960.

Following a tour aboard USS YORKTOWN (CVS 10), Captain Bacon attended submarine school and subsequently served aboard five San Diego-based submarines: USS REDFISH (SS 395), USS VOLANDOR (SS 490), USS SEGUNDO (SS 398), USS SALMON (SS 593) (as Executive Officer), and USS TROUT (SS 566) (as Commanding Officer). Under his command, TROUT was the only fast-attack diesel-electric submarine selected from both the Pacific and Atlantic Fleets for the Battle Efficiency E award.

Captain Bacon served on the staffs of Commander Submarine Squadron 3, Commander Submarine Group 5, Commandant Thirteenth Naval District, Chief of Naval Personnel, and Chief of Naval Operations. During his Washington tours, he served as the Enlisted Rating Coordinator for submarines while assigned to the Bureau of Naval Personnel and to the Department of the Navy Plans and Policy Office (OP-06). He served as the Primary Action Officer for the Navy in the Joint Chiefs of Staff arena for development of Joint Strategic Planning Documents.

After serving as Commanding Officer, Submarine Training Facility, San Diego, from 1980 to 1983, Captain Bacon was assigned to a 2-year tour as Commanding Officer of the amphibious ship USS CLEVELAND (LPD 7). While under his command, CLEVELAND was nominated for the Arleigh Burke Award, representing the most improved ship in the Pacific Fleet.

Captain Bacon comes from a submarine family. His father, RADM Barton E. Bacon II, USN (Ret) (deceased), commanded the submarine USS PICKEREL (SS 524) through five war patrols during World War II. His twin brother, RADM Roger Bacon, USN, is currently assigned as Commander, Submarine Group 8, Naples, Italy, and his younger brother, Commander Dan Bacon, USN (Ret), served for 20 years in the submarine force. At one period during their respective careers, each brother was in command of a Pacific Fleet submarine.

Captain Bacon is a graduate of the National War College of the National Defense University, the Armed Forces Staff College, Defense Intelligence College, and the Senior Officer Material Readiness School.

**Dr. James S. McMichael** became the Technical Director of NPRDC in January 1987.

Dr. McMichael entered the Senior Executive Service in October 1984 as Director of the Training Laboratory where he managed personnel research since 1975. His research specialty with the Navy is military training. As Laboratory Director, he directed research in areas such as intelligent systems for training, team training, training management, curriculum models, production and quality control, naval career models, Marine Corps training, and low-cost simulation.

From August 1985 to August 1986, Dr. McMichael served as Special Advisor for Manpower, Personnel, and Training in the Directorate of Research, Development, and Acquisition (OP-098) and to the Deputy Assistant Secretary of the Navy (Manpower). He had responsibility for advanced-development and engineering development of systems for manpower, personnel and training, for scientific advice on manpower matters to the Director (OP-098), and for policy matters regarding research and development.

Dr. McMichael graduated from Princeton University in 1961 and received his Ph.D. from the University of Delaware in 1965. In 1982 and '83, he was a fellow in Princeton University's Woodrow Wilson School of Public and International Affairs where he concentrated in economics, management, and international policy.

Prior to joining NPRDC, Dr. McMichael chaired the Department of Psychology of Long Island University, where he taught for 10 years.

## Key Personnel

<u>Code</u>	<u>Office</u>	<u>Name</u>
00	Commanding Officer	Bacon
00A	Deputy EEO	Mouzon
00B	Civilian Personnel	Hager
00C	Internal Review	Reynolds
00D	Security/Safety	Ackerman
01	Technical Director	McMichael
01A	Associate Technical Director	---
01B	Executive Assistant	Thorpe
01C	DC Detachment	Kuhn
01D	Technical Program Support	Larson
02	Executive Officer	Almendinger
02A	Internal Control	Griswold
02B	Management Information Systems	Zaske
21	Comptroller	Bigsby
212	Contracts	Wing
22	Administrative & Tech. Support	Blann
221	Mailroom	Garcia
222	ADP Acq. & Tele. Comm.	Copeland
223	Military Personnel Support	Younger
23	Technical Information	Yellen
231	Library	McDowell
232	PAO/Tech Transfer/Historian	Turney
233	Pubs/Briefings/Production	Scheifers
	Graphics	Stout
	Reports Processing	Dalton
25	Facilities (Plans/Maintenance)	Stumpf
31	Fleet Liaison	McGrath
41	Human Factors Department	Sorenson
	Engr. Sup. Group (DC)	Fleming
411	Combat Systems	Koehler
412	Command Systems	Grossman
413	Performance Control	Dockstader
4102	Neurosciences Project Office	Lewis
51	Training Technology	Aiken
	Senior Scientist	Montague
511	Instructional Science	VanMatre
512	Instructional Technology	Wulfeck
52	Training Systems	McLachlan
	Future Technologies	Schustack
521	System Development	Broedling
522	System Applications	Baker
61	Manpower Systems	Silverman
611	Resources Management	Rowe
612	Manpower Utilization	Blanco
62	Personnel Systems	Pass
621	Selection and Standards	Thomas
622	Career Development	Morrison
623	Survey Research	Somer
63	Computerized Testing Systems	Sands
631	Design and Development	Sands (Acting)
632	Evaluation and Maintenance	Borack

## Chronology of 1987 Events

### January

#### New Employees

James Boyle  
Travel Clerk  
Code 21  
GS-2132-04

Velia Fematt  
Secretary  
Code 52  
GS-318-04

Robert Pinkney  
Statistician  
Code 61  
GS-1520-11

Walter Rudolph  
Consultant  
Code 42  
ED-180

Joseph Droner  
Comp. Spec.  
Code 42  
GS-334-12

Fidel Medina  
Mail & File Clerk  
Code 22  
GS-305-03

#### Separations

Martin Molof  
Pers. Res. Psych.  
Code 52  
GS-180-12

Mark Rosenstein  
Comp. Prog. Anal.  
Code 05B  
GS-334-12

Louis Weitzman  
Comp. Prog. Anal.  
Code 05B  
GS-334-12

Martin Wiskoff  
Supv. Pers.  
Res. Psych.  
Code 06  
GM-180-15

Pam Ganser  
Lib. Tech.  
Code 23  
GS-01411-04

Tim McCandless  
Pers. Res. Psych.  
Code 05B  
GS-180-12

Henrietta Borunda  
Sec. (Typing)  
Code 41  
GS-318-04

James Hollan  
Supv. Pers.  
Res. Psych.  
Code 05B  
GM-180-14

Michael Nakada  
Oper. Res. Anal.  
Code 51  
GS-1515-12

Robert Blanchard  
Supv. Pers. Res.  
Psych.  
Code 04  
GM-180-15

#### Retired

Norman Lonsdale  
Comp. Prog.  
Code 61  
GS-334-12

#### Promotion

Barrie Cooper  
Ops. Res. Anal.  
Code 42

#### Visits/Briefs

On 29 January 1987, a briefing was given to LTGEN Cheatham, Headquarters, Marine Corps.

## February

### New Employees

Nenita Mata  
Acct. Tech.  
Code 21  
GS-525-05

Hal Walton  
Cont. Spec.  
Code 21  
GS-1102-11

Clement Urban  
Ind. Eng.  
Code 41  
GS-896-12

Anthony Holt  
Clerk  
Code 62  
GW-303-2

Roxane Smith  
Clerk  
Code 61  
GW-303-2

Janet Held  
Pers. Res. Psych.  
Code 63  
GS-180-9

### Separation

Ed Hutchins  
Pers. Res. Psych.  
Code 52  
GS-180-14

### Promotions

Reginald Bruce  
Pers. Res. Psych.  
Code 62  
GS-180-11

John Folchi  
Mathematician  
Code 63  
GS-1520-11

### Guest Speaker

In celebration of Black History Month, the featured guest speaker was Dr. Joseph W. Watson. Dr. Watson is an Associate Professor of Chemistry and Vice Chancellor for Undergraduate Affairs at the University of California, San Diego.

### Presentation

Professor Frank L. Schmidt (Ph.D.), College of Business Administration, University of Iowa, Assessing Utility of Psychological Tests Supplemental to ASVAB.

## March

### New Employees

Shirley Stolarz  
Sec. (Typing)  
Code 41  
GS-318-5

Mary Delmas  
Lib. Tech.  
Code 23  
GS-1411-04

Anne Wahrenbrock  
Comp. Spec.  
Code 62  
GS-334-7

Dianne Murphy  
Pers. Res.  
Psych., Code 62  
GS-180-9

### Separations

Helen Lozano  
Procurement Clerk  
Code 21  
GS-1106-5

Floyd Creamer  
Mail & File Clerk  
Code 22  
GS-305-4

### Retired

CAPT Franklin D.  
Cooper III, USAF

### Promotions

Larry Carroll  
Comp. Spec.  
Code 63  
GS-334-07

Judy Hollis  
Accountant  
Code 21  
GS-510-09

### Top Honors

LT Uwanna Thomas, Code 211, took top honors by winning two titles in the Armed Forces Bodybuilding Championship, held at Camp Pendleton. Military personnel from all the services, stationed all over the country, overseas, and around the world, gather for this yearly event.

Uwanna took Overall Women's Navy Champion and top award in her class, Lightweight Division.

### **Visits/Briefs**

On 10-11 March 1987, a briefing was given to Dr. Steve Sellman, Office of the Assistant Secretary of Defense and Dr. Anita Lancaster, Executive Secretary, Defense Advisory Committee on Military Personnel Testing.

On 27 March 1987, two briefings were given to (1) the Task Force on Technology in the Schools of the Future and (2) Mr. Ferdinand Robenhymer, Navy Military Personnel Command (NMPC-7), Mr. Richard Martin, Navy Comptroller's Office, Mr. William McGaffin, Office of the Secretary of Defense (Comptroller), and Mr. Thomas Lewis, Office of Management and Budget.

On 30 March 1987, a briefing was given to BGEN Robert Milligan, Director, Development Center, Marine Corps Development and Education Command.

### **DoD/Educational Testing Service Conference on Job Performance Measurement Technologies**

The DoD/Educational Testing Service (ETS) Conference held in March, featured the Honorable Dr. David J. Armor, Principal Deputy Assistant Secretary of Defense (OASD) for Force Management and Personnel (FM&P), as a guest speaker.

Invited addresses from David A. Weeks, President, Weeks and Associates (previous Vice-president of The Conference Board for Research and Program), Dr. Donald A. Hicks, President of Hicks and Associates, previous Undersecretary of Defense (Research and Engineering), underscored the need for further research in this field. Additionally, speeches by Major General Stuart Sherman (Ret.), Director for Manpower, USAF, and Dr. Wayne S. Sellman, Director, Accession Policy, OASD (FM&P), highlighted current and future trends in the field of job performance measurement (JPM).

A published Conference Proceedings was available to document research achievements within the broad field of JPM. A number of papers from this conference was selected for development into chapters that will comprise a book on military performance measurement. Co-Chairpersons Drs. Jerry Laabs and Herb Baker, Code 621, helped in developing this conference, since it relates directly with their JPM project.

The overall objective of this conference was to provide an opportunity to demonstrate the progress of the Joint Service Job Performance Measurement/Enlistment Standards Project; the responsiveness of the Services to the Congressional mandate; and with the involvement of ETS, an ideal mechanism to stimulate technology transfer between the civilian and military research communities.

April

New Employees

Bill Lim Psych. Tech. Code 51 GS-181-5	Huong Ton Elec. Eng. Code 41 GS-855-7	Henry Simpson Elec. Eng. Code 41 GS-855-12	Paul Robertson Statistician Code 51 GS-1530-11
Susan L. Hager Head, Civ. Pers. Sup., Code 00B	Steven Ferrier Pers. Res. Psych. Code 41 GS-180-12	Vincent Unpingco Comp. Spec. Code 63 GS-334-12	Adrianne Collins Clerk Code 61 GS-303-2
John Shelton Supply Clerk Code 21 GS-2005-4	Hilario Gabrintina Supply Clerk GS-2005-4	AWC Carl Czech Chief Anti-sub- marine Warfare Operator	

Separations

Lena Taitano Sec. (Typing) Code 41 GS-318-6	Barbara Anderson Pers. Sup. Supv. Code 00B	Maria Woolery Ed. Asst. Code 23	Erma Delgado Sec. (Typing) Code 41
--	--	---------------------------------------	--

Dulcie Pike  
Sec. (Typing)  
Code 612

Promotions

Christine Hall Proc. Clerk Code 21 GS-1083-06	Patricia Smith Mgmt. Asst. Code 41 GS-344-07	Patricia Thomas Supv. Pers. Res. Psych. Code 62 GM-180-14	Ren'ee Rothlein Sec. (Typing) Code 62 GS-318-6
	Violette Thomas Oper. Res. Anal. Code 41 GS-1515-11	Terri Ferraro Proc. Clerk Code 21 GS-1106-5	

**SECNAV Resigns and Orders Closure of NPRDC**

Secretary of the Navy Lehman resigned his government position effective on 10 April 1987. In the closing out of his tenure in office he signed, among many other things, an order to close NPRDC, effective with the end of the current fiscal year (i.e., as of 1 October 1987).



## May

### New Employees

Lilia Garcia Acct. Tech. Code 21 GS-525-5	Gary Toth Ind. Eng. Code 41 GS-896-9	Pamela Thornton Clerk Code 63 GS-303-2	Kirk Keel Ed. Asst. Code 23 GS-1087-5
	Julie Hoxie Pers. Res. Psych. Code 62 GS-180-9	Anne Leopold Garcia Consultant Code 31 EC-180	

### Separations

Irene Holloway Sec. (Typing) Code 41 (DC Det.) GS-318-6	Ruth Dunnavant Sec. (Typing) Code 51 GS-318-5	Sheila Fleming Sec. (Typing) Code 621 GS-318-5
--	--	---

### Promotion

Reynaldo Monzon  
Pers. Res. Psych.  
Code 63  
GS-180-11

### **Australian Navy Visits Center**

On Friday, 15 May, representatives from the Royal Australian Navy visited NPRDC.

### **Interim XO**

CDR Warren Millard, Code 41, relieved CDR John Kohler as Executive Officer. CDR Millard's assignment is interim until CDR Sylvia Almendinger arrives in mid-July.

### **Science and Technology Review**

Orv Larson coordinated the Science and Technology Review, which was held 12-14 May for Dr. Earl Alluisi (OUSDR&AT)) assistant for Training and Personnel Systems Technology. The reviewers were Earl Alluisi, Jesse Orlansky, Stan Collyer, Bob Carroll, Glenn Spaulding, Bob Hayes, and Judy Moracca.

### Good News!

Burgess, T. (1987, 21 May). Navy reverses order to close think tank here. San Diego Union, pp. B-1, B-12.

Navy Secretary James Webb yesterday reversed an order by former Navy Secretary John F. Lehman, Jr. to close a Navy think tank on Point Loma that employs 300 civilian white-collar workers.

Webb's decision, made less than five weeks after Lehman directed that the Navy Personnel Research and Development Center be shut down, came as welcome news to center workers.

"That's good news to us," said James McMichael, technical director at the center.

"We hope we can take this and strengthen our contribution to the Navy," said McMichael.

The center produces personnel, training and education research projects for the service. It has been operating on Point Loma for 14 years. There will not be any cuts in its civilian or military staff of 30 sailors, said McMichael.

One project now under way would allow all four services to replace its armed services entrance exam with a new exam, designed by the navy center.

The project would allow service officials to make more realistic job assignments with more reliable information taken from the new test, said McMichael.

Lehman ordered the Navy to close the center during a flurry of reorganization decisions made on April 13, his last day in office.

Webb recently agreed to review Lehman's reorganization directives at the request of Adm. Carlisle A. H. Trost, the chief of naval operations.

Trost had openly criticized Lehman's April 13 decisions soon after Lehman left office.

First notified of Webb's reversal was Rep. Bill Lowery, R-San Diego.

"Webb obviously took the time to consider and analyze the important work performed at the facility," Lowery said.

On May 8, Lowery and three other San Diego County House members--Rep. Duncan Hunter, R-Coronado; Rep. Jim Bates, D-San Diego, and Rep. Ron Packard, R-Oceanside--wrote Webb asking him to reverse Lehman's decision.

The directive came as a "bolt out of the blue," according to one senior Navy official and was not believed to be the result of any analysis or mandated personnel cuts.

"We're going to forget this and try and remember some of John Lehman's achievements in improving material readiness in the fleet. We are very supportive of the Office of the Secretary of the Navy and its occupant. We're very glad to line up and be supportive of Mr. Webb," said McMichael.

June  
New Employees

Cheryl Louie Oper. Res. Anal. Code 61 GS-1515-9	Yuh-Ling Su Math. Stat. Code 61 GS-1529-9	Richard Goodwin Comp. Spec. Code 51 GS-334-7	Ernest Pojas Clerk-Typist Code 22 GS-322-4
Angelique Reynolds Pers. Res. Psych. Code 52 GS-180-09	Burton Baker Comp. Spec. Code 51 GS-334-07	Sandra Brown Pers. Clk/Asst. Code 00B GS-203-05	Scott Grier Comp. Spec. Code 51 GS-334-07
Christopher Sager Pers. Res. Psych. Code 52 GS-180-07	Eric J. Godtland Oper. Res. Anal. Code 51 GS-1515-07	Jeffrey Hartung Pers. Res. Psych. Code 52 GS-180-05	

Separations

Susan Campa Clerk Typist Code 52 GS-322-3	Michelle Gross Comp. Prog. Code 51 GS-334-09	Guadalupe Castro Sec. (Typing) Code 41 GS-318-05	Huong Ton Elec. Eng. Code 41 GS-855-07
Scott Newcomb Pers. Res. Psych. Code 31 GS-180-12	Tamara Lopez Psych. Tech. Code 51 GS-181-07	Joyce Ardale Editor Code 62	Sharon Kalberer 6/19/87

Retirements

Ken Fousel Admin. Officer Code 25 GM-341-13	CDR John E. Kohler, JR. USN
--	-----------------------------

Visits/Briefs

On 25 June 1987, a briefing was given to RADM W. P. Houley, Director, Military Personnel Policy Division (OP-13).

On 30 June 1987, a briefing was given to RADM Austin, Superintendent, Naval Postgraduate School.

**Presentations**

Dr. William Rouse, Georgia Institute of Technology, School of Industrial and Systems Engineering:

An Architecture for Intelligent Interfaces: Outline of an Approach to Supporting Operators of Complex Systems

and

On the Design of Man-machine Systems: Principles, Practices, and Prospects.

## July

### New Employees

David Rousseau  
Mech. Eng.  
Code 41  
GS-830-12

Diane Williams  
Pers. Res. Psych.  
Code 52  
GS-180-12

Alice Berwert  
Sec. (Typing)  
Code 41  
GS-318-05

Chester Pabiniak  
Statistician  
Code 61  
GS-1530-11

Dorothy Powell  
Proc. Clerk  
Code 21  
GS-106-04

Wilbert Young  
Pers. Res. Psych.  
Code 52  
GS-180-12

Meei-You Lee  
Comp. Scientist  
Code 61  
GS-1550-11

Brad Rosbrook  
Statistician  
Code 61  
GS-1530-09

### Separations

Rebecca Kelly  
Sec. (Typing)  
Code 63  
GS-180-06

Dan Windisch  
Pers. Res. Psych.  
Code 51  
GS-180-12

Sally Moore  
Pers. Asst.  
Code 00B  
GS-203-06

Rick Goodwin  
Comp. Spec.  
Code 51  
GS-334-07

Brad Rosbrook  
Statistician  
Code 61  
GS-1530-09

### Visits/Briefs

On 31 July 1987, a briefing was given to LTGEN Cheatham, Headquarters, Marine Corps.

### Guest Speaker

Dr. Cynthia Miller of Spelman College, Atlanta, Georgia and a Code 52 Summer Faculty employee presented a summary of her work in Left and Right Brain Hemispheric Specialization as applied to Education and Training.

## August

### New Employees

Kimberly Matthews  
Sec. (Typing)  
Code 41  
GS-318-5

Sherry Patrick  
Sec. (Typing)  
Code 62  
GS-318-4

Geoffrey Fedak  
Pers. Res. Psych.  
Code 62  
GS-180-9

Barbara Busch  
Lib. Soc. Sci. &  
Hum., Code 23  
GS-1410-11

Samantha Maddox  
Clerk/Typist  
Code 00  
(Typing Pool)

Stephen Seneca  
Clerk-Typist  
Code 00  
GS-322-03

Zachary Balanay  
Supply Clerk  
Code 21  
GS-2005-04

### Separations

Donald Malkoff  
Comp. Sys.  
Code 41  
GS-334-13

Kent Huff  
Pers. Res. Psych.  
Code 41  
GS-180-12

Gary Toth  
Ind. Eng.  
Code 41  
GS-896-09

Alice Berwert  
Sec. (Typing)  
Code 41  
318-05

Raymond Lundgren  
Comp. Prog.  
Code 02B  
GS-334-09

Iain Clelland  
Pers. Res. Psych.  
Code 52  
GS-180-12

Christopher Sager  
Pers. Res. Psych.  
Code 52  
GS-180-07

Anthy Holt  
Clerk  
Code 62  
GS-303-02

John Bruni  
Oper. Res. Anal.  
Code 62  
GS-1515-12

Julie Hoxie  
Pers. Res. Psych.  
Code 62  
GS-180-09

### Retired

Edward Alf  
Pers. Res. Psych.  
Code 62

Ida Harloff  
Comp. Spec.  
Code 62  
GS-334-12

## Comprehensive Review of NPRDC

In response to a recommendation by the Chief of Naval Operations and the Secretary of the Navy, VADM Glenwood Clark, USN, Commander, Space and Naval Warfare Systems Command (SPAWARSYSCOM), directed a comprehensive review to be made of the Center's mission, programs, and resource applications. The review focused, from a Navy-user perspective, on the question, "Are we asking for and getting what we need from NPRDC?" A Flag Level Steering Committee was established to guide and direct the review supported by a Working Group.

### Steering Committee

RADM John Weaver, USN (Chairman), Vice Commander, SPAWAR-09  
RADM Ralph West, USN, Director, Human Resource Management Division, OP-15  
Mr. Tony DiTrapani, Director, Civilian Personnel Policy/Equal Employment Opportunity, Office of the Secretary of the Navy for Manpower and Reserve Affairs, OASN, MRA (CPP/EEO)  
Mr. Bob Doak, Deputy Commander, SPAWAR-10  
Mr. Jim Marsh, Assistant to Deputy Chief of Staff for Manpower (Marine Corps) HQ, USMC, M  
Dr. Dick Elster, Deputy Assistant Secretary for Manpower, Office of the Secretary of the Navy for Manpower and Reserve Affairs, OASN, MRA (Manpower)  
Dr. James Tweeddale, Director, NROTC Selection and Placement, Chief of Naval Education and Training, CNET  
Mr. John Crossley (Executive Secretary), Lab Operations Officer, Office of the Director of Navy Labs, SPAWAR-00514

### Working Group

CAPT Paul Valovich, USN (Chairman), Chief Staff Officer, Navy Weapons Center, NWC CSO  
CAPT J. Mike Welch, USN, Deputy, Military Personnel Policy Division, OP-13B  
COL Bob Sullivan, Head, Manpower Analysis, Evaluation Branch, HQ, USMC  
Dr. Ken Coffey, Staff Director/Director Manpower Analysis, Office of the Secretary of the Navy for Manpower and Reserve Affairs, OASN, MRA (Manpower Analysis)  
Dr. Stanley Collyer, Technical Area Manager, Personnel and Training, Office of the Chief of Naval Research, OCNR-222  
Dr. Dick Kistler, Naval Weapons Center, NWC  
Mr. John Crossley, Lab Operations Officer, Office of the Director of Navy Labs, SPAWAR-00514  
Mr. Howard V. Law, Associate Director of Navy Labs, SPAWAR-005

Both the Steering Committee and Working Group visited the Center 4-6 August for the briefings and discussions. Additional visits and meetings followed. The final report was made to VADM Clark.

## September

### New Employees

Shelia Stevens Clerk-Typist Code 00B GS-322-3	Robyn Baldwin Pers. Res. Psych. Code 51 GS-180-7	Mark Reyes Supply Clerk Code 216 GS-2005-4	Michael O'Connell Mathematician Code 61 GS-1520-05
Mark Blankenship Pers. Res. Psych. Code 41 GS-180-09	Gabriela Coverdale Pers. Res. Psych. Code 63 GS-180-08	Charles W. Johns Pers. Res. Psych. Code 63 GS-180-07	Michael J. Lynch Supply Clerk Code 21 GS-2005-04
	Josh W. Woods Supply Clerk Code 21 GS-2005-04	Hoa Tai Lu Comp. Spec. Code 63 GS-344-07	

### Separations

Carol Winans Clerk Code 00B GS-308-02	James Broyles Res. Psych. Code 41 GS-180-11	Jacqueline Phelps Secretary Code 41 (VA Det.) GS-318-5	Zachary Balanay Supply Clerk Code 21 GS-2005-04
Eric Godtland Oper. Res. Anal. Code 51 GS-1515-07	Kenneth Funk Eng. Res. Psych. Code 41 GS-180-12	Mark Levine Pers. Res. Psych. Code 41 GS-180-12	

### Promotions

Amy Culbertson Pers. Res. Psych. Code 41 GS-180-11	Debbie Grooms Cont. Spec. Code 21 GM-1102-13	Roxane Smith Clerk-Typist Code 61 GS-322-04	Annette Stout Sec. (Typing) Code 63 GS-318-06
	Sandi Brown Pers. Asst. Code 00B GS-203-06		

### **Consolidating Codes 22 and 24**

On 19 October, Code 22--Administrative and Technical Support and Code 24--Military Personnel were combined with the new title Administrative and Military Personnel Support Division, Code 22. PNC Marshal Blann is the division head replacing LT Debra Gonzalez.

### **Center Visitors**

Dr. Crano, Office of Naval Research (ONR), London, visited NPRDC on Thursday and Friday, 3-4 September.

Officials from the Netherlands visited NPRDC on Tuesday, 15 September to "investigate new possibilities for cooperation." The visitors included Dr. J. M. Dirkzwager, Director of Research and Development, Ministry of Defense; COMO J. M. Veltman, Director of Material Projects of Royal Netherlands Navy; and CAPT J. J. Scholten, Head, Scientific Research, Royal Netherlands Navy.

### **Visits/Briefs**

On 30 September 1987, a briefing was given to RADM Kenneth L. Carlson, Director, Warfare Systems Architecture and Engineering Directorate, Space and Naval Warfare Command, Mr. Paul Wessel (SPAWAR 30T), Ms. Genie McBurnett (SPAWAR 31T), and Mr. Ivan Hall (SPAWAR 32T).



## October

### New Employees

Joseph Graf  
Comp. Equip. Anal.  
Code 63  
GS-334-12

John Kantor  
Pers. Res. Psych.  
Code 41  
GS-18-9

Sharon W. Kalberer  
Code 00B  
GS-203-06

Daniel Christinaz  
Pers. Res Psych  
Code 52  
GS-180-12

Karyll Shaw  
Pers. Res. Psych.  
Code 41  
GS-180-12

Brian Kewley  
Comp. Spec.  
Code 62  
GS-334-09

Carolyn Macky  
Statistician  
GS-1530-09

### Separations

Robert Buckingham  
Comp. Equip. Anal.  
Code 22  
GS-334-12

Vickie Evans  
Secretary  
Code 41  
GS-318-04

Sandi Brown  
Pers. Asst.  
Code 00B  
GS-203-06

Michael Lynch  
Supply Clerk  
GS-2005-04

### Promotions

P-A. Federico  
Pers. Res. Psych.  
Code 511  
GS-180-14

Laurie Broedling  
Supv. Pers. Res.  
Psych., Code 52  
GM-180-15

Tim Liang  
Oper. Res. Anal.  
Code 61  
GM-1515-14

Pat Thomas  
Supv. Pers.  
Res. Psych.  
Code 621  
GM-180-14

Jerry Laabs  
Pers. Res. Psych.  
Code 621  
GM-180-14

Ted Thompson  
Oper. Res. Anal.  
Code 612  
GM-1515-13

Sandy Wetzel-Smith  
Pers. Res. Psych.  
Code 521  
GM-180-13

Joyce Mattson  
Pers. Res.  
Psych.  
Code 621  
GM-180-13

Walt Thode  
Pers. Res. Psych.  
Code 521  
GM-180-13

Alan Whisman  
Oper. Res. Anal.  
Code 612  
GM-1515-13

Raye Newmen  
Pers. Res. Psych.  
Code 512  
GM-180-13

### Retirement

PNCM Jack L. Maynard

### **NPRDC Researchers are Award Winners**

Tim Liang and Ted Thompson, Code 61, were awarded the prestigious Koopman Prize by the Operations Research Society of America (ORSA) for the best military operations research paper published in 1987. The prize, including a cash award, was presented at ORSAs National Meeting in St. Louis on 26 October. Tim and Ted's winning entry was their article "A Large Scale Personnel Assignment for the Navy," published in Decision Sciences (Spring, 1987).

### **Earl I. Jones Memorial Lecture Series**

Earl I. Jones Memorial Lecture Series given by Prof. Phillip Ackerman of the Department of Psychology, University of Minnesota, Cognitive ability determinants of individual differences during skill acquisition: Implications for training and selection.

### **Visits/Briefs**

On 22 October 1987, the USMC Exploratory Development Program Review for Manpower and Training Technology was presented to Dr. John Druzick, Development Center and COL Jim Kirchner, Office of Naval Technology.

## November

### New Employees

Thereasa Cronan  
Pers. Res. Psych.  
GS-180-12

Elaine Frank  
Clerk Typist  
GS-322-03

Hue Nguyen  
Comp. Spec.  
GS-334-07

James Williams  
Oper. Res Anal  
Code 61  
GS-1515-09

STSCS Michael Spencer  
Code 521

DS1 David Curtis  
Code 22

Marilou Tuanqui  
Pers. Clerk  
Code 00B  
GS-203-05

### Separations

Michelle Allen  
Comp. Spec.  
GS-334-11

Cheryl Louie  
Oper. Res. Anal.  
GS-1515-09

Kent Crawford  
Pers. Res. Psych.  
GS-180-13

Hilario Gabrintina  
Supply Clerk  
GS-2005-04

Dorothy Powell  
Proc. Clerk (Typing)  
GS-1106-04

### **Tri-Service Commanders Meeting**

The Commanding Officers and Technical Directors of the three services (manpower, personnel, and training R&D laboratories) met at NPRDC on 17-18 November 1987. Attendees included COL Darryl Henderson and Dr. Ed Johnson, Commander and Technical Director of the Army Research Institute (ARI), COL Harold Jensen, COL Irv LeBlanc, and Dr. Lloyd Burtch, Commander, Vice Commander, and Director of Plans and Operations, Air Force Human Resources Laboratory (AFHRL), and Dr. Earl Alluisi, Office of the Under Secretary of Defense (OUSD,R&E).

### **Presentation**

Dr. Frank Schmidt, University of Iowa spoke on the topic of Utility Analysis: Application to Navy's Classification System.

## **December**

### **New Employee**

Jose Suarez  
Pers. Res. Psych.  
Code 52  
GS-180-09

### **Separations**

Josh Woods	Deborah Grooms
Supply Clerk	Cont. Spec.
Code 21	Code 21
GS-2005-04	GM-1102-13

### **Promotions**

Judy Lawson	Paul Rosenfeld
Code 62	Code 62
GS-12	GS-12

### **Retirement**

Jim Emery  
Warehouseman  
Code 216

### **Meritorious Award**

Steve Dockstader, Code 413, received the Navy Meritorious Civilian Service Award. This is the highest award given to civilian government workers. He was so honored for his research work conducted on Total Quality Management (TQM), an approach used for quality improvement at naval aviation depots.

### **Presentation**

Dr. Arthur R. Jensen of the University of California at Berkeley gave a presentation on Psychometric and learning ability.

## HISTORY OF THE CENTER

- 1 Jul 51      The Naval Personnel Research Unit, San Diego, CA was established under the Bureau of Naval Personnel to provide a personnel research facility close to the operating forces.
- 1 Jul 52      The U.S. Naval Personnel Research Field Activity was established in Washington, DC to provide an activity close to Navy users and systems.
- 26 May 61    SECNAV Notice 5450 redesignated the two field activities as U.S. Naval Personnel Research Activities.
- 10 Dec 68    OPNAV Notice 5450 redesignated the Naval Personnel Research Activity, Washington, DC as the Naval Personnel Research and Development Laboratory due to increased emphasis on R&D.
- 1 Aug 69      The Chief of Naval Operations redesignated the Naval Personnel Research Activity, San Diego, CA as the Naval Personnel and Training Research Laboratory
- 1 May 73      The Secretary of the Navy approved the establishment of the Navy Personnel Research and Development Center (NPRDC), San Diego, CA to provide a corporate personnel laboratory with an in-depth capability in the behavioral and management sciences. This action consolidated those research functions assigned to the Naval Personnel Research and Development Laboratory, the Naval Personnel and Training Research Laboratory, and the Personnel Research Division of BUPERS.
- 17 May 75    OPNAV Notice 5450 changed command and support responsibility for NPRDC from the Chief of Naval Personnel to the Chief of Naval Material (CNM).
- 22 May 80    NAVMATINST 5450.27B modified the mission statement to include Technical and Consultant Support and Services to CNO in the design, development, and operation of the Navy personnel system.
- 1 Oct 80      The Commanding Officer, NPRDC directed to report for additional duty to DCNO (Manpower, Personnel, and Training) (OP-01).
- 6 May 85      The disestablishment of CNM changed command and support responsibility for NPRDC from CNM to Chief of Naval Research (CNR).
- 24 Feb 86    The Secretary of the Navy changed command and support responsibility for NPRDC from CNR to Space and Naval Warfare Systems Command (SPAWAR).

## RESOURCES

### Financial

NPRDC's funding for the end of FY87 is shown in Figures 3, 4, and 5.

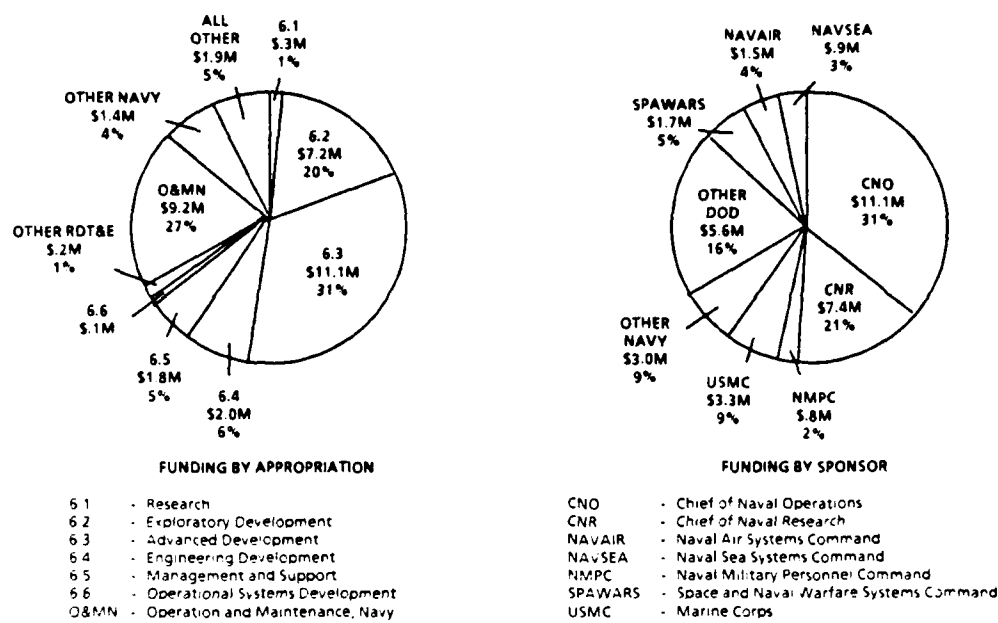
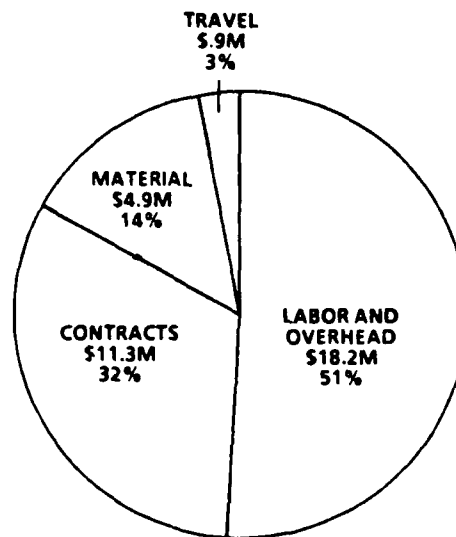


Figure 3. FY87 funds--actual \$35.312M.

CATEGORY AND TYPE	FY1987		
	\$M ACT.	% OF	
		RDT&E	TOTAL
<b>RDT&amp;E,N:</b>			
6.1 RESEARCH	.312	1	1
6.2 EXPLORATORY DEVELOPMENT	7.211	32	20
6.3a ADVANCED TECHNOLOGY DEVELOPMENT	10.171	45	28
<b>SUBTOTAL</b>	<b>17.694</b>	<b>78</b>	<b>49</b>
6.3b ADVANCED DEVELOPMENT	.950	4	3
6.4 ENGINEERING DEVELOPMENT	2.049	9	6
6.5 MANAGEMENT AND SUPPORT	1.793	8	5
6.6 OPERATIONAL SYSTEMS DEVELOPMENT	.112	0	0
<b>RDT&amp;E,N SUBTOTAL</b>	<b>22.598</b>	<b>99</b>	<b>63</b>
<b>OTHER RDT&amp;E</b>	<b>.205</b>	<b>1</b>	<b>1</b>
<b>TOTAL RDT&amp;E</b>	<b>22.803</b>	<b>100</b>	<b>64</b>
<b>OTHER APPROPRIATIONS:</b>			
(O&MN) OPERATION & MAINTENANCE, NAVY	9.193	-	27
OTHER NAVY	1.415	-	4
ARMY	.856	-	2
AIR FORCE	.038	-	0
OTHER DOD	1.007	-	3
<b>APPROPRIATION SUBTOTAL</b>	<b>12.509</b>	<b>-</b>	<b>36</b>
<b>TOTAL</b>	<b>35.312</b>	<b>-</b>	<b>100</b>

NEW OBLIGATIONAL  
AUTHORITY (NOA)  
(\$ IN MILLIONS)

Figure 4. Funds by category and type.



FY87 ACTUAL

Figure 5. Distribution of funds.

### Manpower

At the end of FY87, NPRDC's staff numbered 310 civilian employees, 182 of whom were scientists and technicians trained and qualified in areas such as psychology, education, mathematics, statistics, operations research, and economics. In addition, the staff includes 25 military personnel with extensive fleet experience. This broad base allows NPRDC to maintain a highly effective, multidisciplinary team approach to its R&D. A chart of NPRDC's personnel representation is shown in Figure 6.

<u>TOTAL</u> <u>On Board</u> 335	<u>TOTAL</u> <u>Military</u> 25	<u>TOTAL</u> <u>Civilian</u> 310	<u>FTP</u> <sup>1</sup> 272	<u>TPT</u> <sup>2</sup> 38	<u>FTP</u> <sup>1</sup> <u>Ungraded</u> 1	<u>FTP</u> <sup>1</sup> <u>Graded</u> 271
<u>Authorization/Budgeted End-strength</u>			<u>FTP</u> <sup>1</sup> <u>Graded</u> :			
<u>Personnel</u> :	<u>FY88</u>	<u>FY89</u>	Scientists		174	
			Administrative		54	
			Technicians		8	
			Others		36	
Officer	6	6				
Enlisted	18	16				
Civilian	302	301				
TOTAL	326	323				
			<u>Military</u> :	<u>On Board</u>	<u>Authorization</u>	
			Officer	7	7	
			Enlisted	18	18	
			TOTAL	25	25	

<sup>1</sup>Full-time permanent

<sup>2</sup>Temporary, part-time, intermittent which are subject to ceiling

Figure 6. NPRDC personnel.

## Facilities

NPRDC is located on Point Loma in San Diego, California with support offices in Washington, DC. The Center occupies 17 buildings under a host-tenant arrangement with the Naval Ocean Systems Center.

Land area utilized: 3 acres

**Buildings:**

Laboratory	79,332 sq. ft.
Administration	18,417 sq. ft.
Other	0 sq. ft.

**Acquisition costs:**

Real property	\$ .78 million
(Classes I & II)	
Equipment	\$11.8 million
(Classes III & IV)	

In addition to office space for research and support personnel, the following research facilities are housed at the Center:

- **Training Research Computing Facility** provides general Unix-based computing services and access to the Defense Data Network (DDN) for Center research and support staff. The facility is supported by the Training Technology Department and provides computational and electronic mail support for research in the areas of artificial intelligence, computer-assisted instruction, cognitive science, testing, and training. The facility's equipment suite includes two Digital Equipment Corporation (DEC) VAX-11/780 computers and numerous peripherals.

- **Manpower and Personnel Computing Facility** provides general purpose IBM-based computing services for Center researchers and administrative operations. The facility is especially equipped to serve psychologists, economists, mathematicians, and computer scientists whose research requires the organization and analysis of large data files, the development of large-scale mathematical models, the design of information delivery systems, and general purpose scientific computing. The facility features an IBM 438/23, multiple tape drives, and over 25GB in disk storage.

- **System Simulation Facility** serves cognitive and organizational psychologists and human factors engineers who are concerned with the measurement of human performance, human factors in command system design, neuroscience applications in personnel readiness assessment, and motivation of people in organizations. It includes equipment for biopsychological and psychophysiological measurement.

- **Command Systems Facility** provides a controlled setting to examine individual and team performance in Battle Group Command environments (as well as other critical settings). Various organizational and management systems or conditions are tested in this facility, which serves social, industrial, and organizational psychologists as well as management experts.



The above facilities are supplemented by two mobile laboratories that provide R&D support at sites away from the Center, and by a large inventory of computer equipment ranging from microcomputers supporting specific projects to the Center's IBM 4341, which is used both as a stand-alone processor and as a remote job entry station.

## R&D PROGRAM

PROGRAM AREA	FUNCTION	MISSION AREA
Manpower Systems	The Manpower Systems Department concentrates on several R&D thrusts: (1) estimating the level of military and civilian support manpower needed to keep alternative fleet configurations in a state of readiness; (2) designing systems for optimal person-job match based on cost, fleet requirements, individual preferences, and a variety of assignment policies; (3) developing large scale systems for managing the flow of personnel (accessions, retention, promotion) to attain desired skill inventories within constraints of cost and feasibility; and (4) forecasting the cost implications of alternative manpower programs and the personnel effects of different compensation initiatives.	Manpower
Personnel Systems	The R&D conducted by this department focuses on the following major thrusts: (1) improving recruiting procedures and strategies to maintain the appropriate quality and quantity of Navy military accessions, (2) predicting military performance and retention and establishing standards for school and occupation entry, and (3) analyzing and developing policies and procedures to improve the utilization and satisfaction of Navy personnel throughout their careers.	Personnel
Testing Systems	The R&D conducted by this department focuses on development and evaluation of a computerized adaptive testing (CAT) version of the Armed Services Vocational Aptitude Battery (ASVAB) for personnel selection and classification. The main thrust of this research is organized around two areas: (1) psychometric research and (2) delivery system development. Work in the psychometric area includes: development and calibration of large banks of test items; evaluation of alternative procedures for administering, scoring, and terminating	Personnel

**PROGRAM AREA****FUNCTION****MISSION AREA**

adaptive tests; and demonstration of an experimental version of CAT-ASVAB. Accomplishments on the delivery system include specification of the functional requirements, evaluation of alternative generic computer hardware designs, selection of a microcomputer system, and the initiation of software development.

**Training Technology**

The overall goal of this department is to develop and test training technologies that will increase the effectiveness of Navy training, while controlling its costs. This is achieved through the following R&D thrusts: (1) developmental investigations and test and evaluation of emerging technologies that have promise for the near, mid, and distant timeframes; (2) investigations of mental functioning underlying training procedures that promote efficient recall, improve problem-solving and decision making, and provide application of management science techniques (e.g., econometrics and operations research) to test policy options, and to aid the day-to-day management of the training enterprise; and (4) short term R&D that is responsive to specific requirements of warfare area sponsors, ordinarily through the use of mature technologies.

**Training****Training Systems**

The overall goal of this department is to employ existing and emerging technologies in the development and application of training systems to alleviate Navy training problems and improve the Navy's operational readiness. The department's major R&D thrusts are: (1) development and coordinated application of troubleshooting strategies and computer/simulation technologies to improve Navy maintenance training; (2) solving operational training problems through the modification and application of emergent systems with proven capabilities; (3) adapting and transferring military training technology to improve the effectiveness and efficiency of Navy professional and management training; (4) development of Navy training systems that will best meet the Navy's needs for skilled personnel while enabling officers and enlisted personnel to achieve their personal career goals; (5) design, delivery, and management of training to ensure maximum readiness of Navy and Marine Corps combat

**Training**

**PROGRAM AREA****FUNCTION****MISSION AREA**

	forces; and (6) assessing the technical and operational feasibility of emergent training programs and systems.	
Human Factors	<p>The Human Factors Department conducts R&amp;D to better understand the human and organizational processes that underlie the performance of military and civilian Navy personnel in organizational contexts and human functioning at the human-machine interface. The resulting principles and techniques are applied within an organizational systems approach to enhance motivation and productivity and to optimize the design, development, operation, and maintenance of Navy human-machine systems. The department's major R&amp;D thrusts within the human resources productivity area include: (1) identifying and developing techniques to improve quality and quantity of productivity by individuals and organizations, (2) investigating the management factors and policies that facilitate or inhibit the functioning of Navy organizations, and (3) examining the impact of new technology on workers and organizations and determining how to realize expected benefits from the implementation of new technology. The remaining thrusts that form the man-machine systems are: (1) developing principles and techniques for evaluating and enhancing command effectiveness; (2) providing human factors support for the development of new command and control systems; (3) providing RDT&amp;E to augment and stimulate human factors efforts in the design and development of new systems, and determining the manning, training, and supportability implications of proposed systems; (4) improving the effectiveness of individuals and teams by application of the principles of human performance; (5) ensuring the application of human factors principles and data to Navy systems throughout their life cycle; and (6) applying mathematical models to enhance decision-making capabilities of advanced combat systems.</p>	Human Factors

In addition, NPRDC has set up a Fleet Liaison Office (FLO) to maintain liaison with staffs of Fleet, Type, and Systems Commanders for R&D support, to evaluate R&D plans and products for Fleet application and to participate in the Navy Science Assistance Program (NSAP). The FLO and NSAP also acts as a sounding board for a network of interactions and interrelationships between the operating forces of the Navy and NPRDC's technical community.

## Publications and Presentations

### Technical Reports

- Buclatin, B. (October 1986). A Decision Model to Improve the Assignment of Enlistment Program Guarantees in the Marine Corps (TR 87-61). (AD-A173 871)
- Clelland, I. J. (November 1986). Enlisted Personnel Individualized Career System (EPICS): Test and Evaluation of First Shipboard and Shore-based Training Phases (TR 87-9). (AD-A174 933)
- Cooper, B. L., Nebeker, D. M., & Riedel, J. A. (July 1987). Incentive Magnitude, Job Satisfaction, Perceived Stress, and Performance: Interrelationships in an Organizational Simulation (TR 87-29). (AD-A182 332)
- Cooper, B. L. (July 1987). Stress in Organizations: A Review of the Literature (TR 87-30). (AD-A183 239)
- Curtis, E. W., Borack, J. I., & Wax, S. R. (August 1987). Estimating the Youth Population Qualified for Military Service (TR 87-32). (AD-A184 375)
- Ellis, J. A., Knirk, F. G., Taylor, B. E., & McDonald, B. A. (March 1987). The Course Evaluation System. (TR 87-19). (AD-A178 521)
- Feher, B., Riedel, J. A., Farkas, A. J., White, M. A., Millard, W. J., & Levine, M. F. (September 1987). Improving Performance of the Navy Intermediate Maintenance System in San Diego (TR 87-33). (AD-A185 924)
- Ganeshan, J., & Rowe, M. (March 1987). An Investigation on NEC Utilization (TR 87-18). (AD-A178 310)
- Ganeshan, J. (April 1987). NEC-Related "C" School Planning (TR 87-22). (AD-A180 642)
- Hunt, E., Pellegrine, J. W., Abate, R., Alderton, D. L., Farr, S. A., Frick, r. W., & McDonald, T. P. (August 1987). Computer-Controlled Testing of Visual-Spatial Ability (TR 87-31). (AD-A183 971)
- Jordan, R. (February 1987). Navy Enlisted Advancement Planning and the Advancement Interface System (ADIN) (TR 87-17). (AD-A178 091)
- Konoske, P. J., & Ellis, J. A. (December 1986). Cognitive Factors in Learning and Retention of Procedural Tasks (TR 87-14). (AD-A176 105)
- Krass, I. A. (September 1987). An Alternative Algorithm for Optimizing Personnel Assignment in the Navy (TR 87-35). (AD-A185 921)
- Laabs, G. J., & Berry, V. M. (August 1987). The Navy Job Performance Measurement Program: Background, Inception, and Current Status (TR 87-34). (AD-A186 100)
- Liang, T. T., Thompson, T. J., & Zimmerman, G. L. (December 1986). The Enlisted Personnel Allocation and Nomination System (EPANS): Prototype for the Administrative/Deck/Supply Ratings (TR 87-11). (AD-A175 697)

- Malkoff, D. B. (November 1986). Real-Time Fault Detection and Diagnosis: The Use of Learning Expert Systems to Handle the Timing of Events (TR 87-8). (AD-A174 655)
- McCann, P. H. (October 1986). The Relative Effectiveness of Computer System Error Messages (TR 87-1). (AD-A173 326)
- McDonald, B. A., & Whitehill, B. V. (April 1987). Visual Recognition Training: Effectiveness of Computer Graphics (TR 87-21). (AD-A179 996)
- Medearis, B. D. (October 1986). A Model for Estimating Direct-funded Civilian Scientist, Engineer, and Technician Staffing in the Navy Research and Development Centers (TR 87-2). (AD-A173 235)
- Mullins, C. (May 1987). An Assessment of Marine Corps Enlisted Personnel Data (TR 87-26). (AD-A181 315)
- Nebeker, D. M., & Culbertson, A. L. (December 1986). The Reentry of Navy Science Assistance Program Personnel: Analysis and Recommendations for Improving the Process (TR 87-13). (AD-A175 697)
- Riedel, J. A., Nebeker, D. M., & Cooper, B. L. (January 1987). The Influence of Monetary Incentives on Goal Choice, Goal Commitment, and Task Performance (TR 87-15). (AD-A176 329)
- Riedel, J. A., Crawford, K. S., Nebeker, D. M., & Cooper, B. L. (May 1987). Designing a Group Wage Incentive System for Shipyard Production Employees (TR 87-24). (AD-A180 282)
- Sheposh, J. P., & Shettel-Neuber, J. (December 1986). Assessment of Aspects of an Organization Important to the Implementation of a Quality Improvement Effort (TR 87-12). (AD-A175 299)
- Shumate, E. C., & Landau, S. B. (March 1987). Suggestions for Improving the Department of Defense Suggestion Program (TR 87-20). (AD-A179 004)
- Smillie, R. J. (November 1986). Design Strategies for Job Performance Aids (TR 87-5). (AD-A174 358)
- Smillie, R. J., & Clelland, I. J. (November 1986). Enlisted Personnel Individualized Career Systems (EPICS): Acceptance and Use of Job Performance Aids (JPAs) (TR 87-7). (AD-A174 504)
- Wetzel, C. D., Van Kekerix, D. L., & Wulfeck, II W. H. (May 1987). Characteristics of Navy Training Courses and Potential for Computer Support (TR 87-25). (AD-A180 609)
- White, M. A., Crawford, K. S., & Dockstader, S. L. (December 1986). A Field Study of an Individual Incentive System for Production Workers (TR 87-10). December 1986. (AD-A175 298)

#### **Special Report**

- Crawford, A. M., & Metcalfe, M. H. (Eds.). (January 1987). FY86 Independent Research/Independent Exploratory Development (SR 87-1).

## Technical Notes

- Baker, H. G., Blackhurst, J. L., & Alba, P. A. (May 1987). Interservice Technology Transfer of J-79 Jet Engine Mechanic Performance Measures (TN 87-22). (AD-A180 643)
- Baker, H. G., Berry, V. M., Kazan, J. B., & Diamond, E. E. (June 1987). Development of an Automated Instrument to Assess Career Maturity: The Career Plans Check-Up (TN 87-26). (AD-A181 949)
- Broedling, L. A., & Pavett, C. M. (November 1987). Training, Education, and Experience Needs in Naval Sea Systems Command Program Offices (TN 87-1). (AD-A174 809)
- Chatfield, R. E., & Morrison, R. F. (August 1987). Preparing to Evaluate Officer Career Path Changes: Pre-Change Data Base Development (TN 87-37). (AD-B114 650)
- Goldberg, E., Hulton, V., Konoske, P., & Monda, M. (May 1987). An Introduction to Quality Management: Selected Readings (TN 87-23).
- Holland, J. L., & Baker, H. G. (December 1986). Preliminary Classification of Army and Navy Entry-Level Occupations by the Holland Coding System (TN 87-5). (AD-A175 900)
- Holland, J. L., & Baker, H. G. (February 1987). Using Expressions of Vocational Aspirations in Military Vocational Guidance: I. Preliminary Investigation and Research Planning (TN 87-14). (AD-A177 779)
- Houston, A., Hulton, V., Landau, S. B., Monda, M., & Shettel-Neuber, J. (March 1987). Measurement of Work Processes Using Statistical Process Control: Instructor's Manual (TN 87-17). (AD-A179 169)
- Johnson, D. M., & Smillie, R. J. (June 1987). Tri-Service Comparison of Characteristics of Four Electronic Information Delivery Devices (TN 87-30).
- Kelly, R., & Hearold, S. L. (December 1986). Summary of Command, Control, and Communications Research (TN 87-6).
- Kerce, E. W. (April 1987). A Manual for Program Evaluation at Navy Family Service Centers (TN 87-19). (AD-A178 999)
- Kerce, E. W. (August 1987). Navy Family Service Centers: Considering Member Awareness as a Barrier to Utilization (TN 87-38). (AD-A184 415)
- Kidder, P. J., Nerison, R. M., & Laabs, G. J. (June 1987). Navy Job Performance Measurement Program: An Examination of Data Bases, Programs, and Training Simulators as Sources of Job Performance Information (TN 87-28). (AD-A182 450)
- Lammlein, S. E., & Baker, H. G. (February 1987). Developing Performance Measures for the Navy Radioman (RM): Selecting Critical Tasks (TN 87-13). (AD-A177 887)
- Landau, S. B. (March 1987). Training in Statistical Process Control at the Naval Air Rework Facility, North Island: A Total Quality Management Implementation Tool (TN 87-18).

- Lawson, J. K., Murphy, D. J., & Magnusson, P. (May 1987). Attitude Survey of Civilian Housing Residents, Hawaii 1986 (TN 87-25). (AD-A181 936)
- Lawson, J., Murphy, D., & Turk, S. (September 1987). Attitude Survey of Military Family Housing Residents, Hawaii 1987 (TN 87-48).
- Mattson, J. D., Neumann, I., & Abrahams, N. M. (December 1986). Development of a Revised Composite for NROTC Selection (TN 87-7). (AD-A182 862)
- Meister, D. (September 1987). The Human Role in Future Automated Systems (TN 87-45).
- Meister, D. (September 1987). Behavioral Test and Evaluation of Expert Systems (TN 87-46).
- Norris, L., & Baker, H. G. (June 1987). Development of SEA-LECT: A Computer-Based Guidance and Information System (TN 87-27). (AD-A182 990)
- Nugent, W. A., Sander, S. I., Johnson, D. M., & Smillie, R. J. (September 1987). Troubleshooting Performance Using Paper and Electronic Documentation (TN 87-41). (AD-A185 256)
- Rosenfeld, P., Doherty, L. M., & Carroll, L. K. (August 1987). Microcomputer-Based Organizational Survey Assessment: Applications to Training (TN 87-39). (AD-A184 408)
- Spier, M. S. (July 1987). The Employment Interview: Guideposts for Research and Development (TN 87-36). (AD-A182 979)
- Stern, H. W., & McCabe, K. I. (September 1987). Revising E-2C Replacement Naval Flight Officer Training: Media and Training Issues and Recommendations (TN 87-43).
- Stinson, W. J. (December 1986). Human Factors Checklist for Evaluation of System Design and Support Effectiveness (TN 87-2). (AD-A175 197)
- Wanous, J. P., & Baker, H. G. (May 1987). Development of Realistic Job Previews for the Long Beach Naval Shipyard (TN 87-24).
- White, C. T., White, C. L., & Hintze, R. W. (July 1987). Central Versus Peripheral Visual Fields and Early/Late Components of Visual Evoked Potentials (TN 87-35).
- White, M. A. (December 1986). Preparing the Ship's Maintenance Action Form (SMAF) COMNAVSURFPAC 4700/1 (TN 87-3).
- Wilcove, G. L., Bruni, Jr., J., & Morrison, R. F. (August 1987). Officer Career Development: Reactions of Two URL Communities to Detailers (TN 87-40). (AD-A184 422)

### Journal Articles and Books

- Alf, E. F. (1987, Spring). A basic program to computer Fisher's exact test. Educational and Psychological Measurement 47(1), 139-140.
- Baker, H. G., & Berry, V. M. (1987). Processes and advantages of entry-level counseling. Personnel Journal, 66(4), 111-121.
- Geoffrion, A. M. (1987). An introduction to structured modelling. Management Science, 33(5), 547-588.
- Geoffrion, A. M. (1987, February). Modelling approaches and systems related to structured modelling (Working Paper No. 339). Los Angeles: University of California Los Angeles, Western Management Science Institute.
- Hollan, J. D., Hutchins, E. L., McCandless, T. P., Rosenstein, M., & Weitzman, L. Advances in man-machine systems (ICS Rep. No. 8603). La Jolla, CA: University of California, San Diego, Institute for Cognitive Science.
- Hollan, J. D., Hutchins, E. L., McCandless, T. P., Rosenstein, M., & Weitzman, L. (1987). Graphics interfaces for simulation. Advances in Man-Machine Systems Research, 3, 129-163.
- Hollan, J. D., Hutchins, E. L., & Weitzman, L. (1987). STEAMER: An interactive inspectable simulation-based training system. In G. Kearsley (Ed.), Artificial Intelligence and Education.
- Holmes, R. M., Jr., & Pinciario, S. J. (1987). Problems in estimating the Navy's permanent change of station (PCS) move requirements. 1986 American Statistical Association Proceedings of Business and Economics Statistics Section, 637-641.
- Kennington, J. L., & Whisman, A. (Rev. 1987, January). NETSID user's guide (TR 86-OR-01). Dallas: Southern Methodist University, Department of Operations Research.
- Lee, R., & Foley, P. P. (1986). Is the validity of a test constant throughout the test score range? Journal of Applied Psychology, 71(4), 641-644.
- Liang, T. T., & Thompson, T. J. (1987). A large-scale personnel assignment model for the Navy Decision Sciences, 18(2), 234-249.
- Malkoff, D. B. (1987, April). A framework for real-time fault detection and diagnosis using temporal data. The International Journal of Artificial Intelligence in Engineering, 2(2), 97-111.
- Morrison, R. F. (1987). An introduction to professional and career development. In R. F. Morrison & R. M. Vosburgh (Eds.), Career development for engineers and scientists, Ch. 1. New York: Van Nostrand Reinhold.
- Morrison, R. F. (1987). Career management systems. In R. F. Morrison & R. M. Vosburgh (Eds.), Career development for engineers and scientists, Ch. 2. New York: Van Nostrand Reinhold.



- Morrison, R. F. (1987). The individual's career transitions. In R. F. Morrison & R. M. Vosburgh (Ed.) Career development for engineers and scientists, Ch. 8. New York: Van Nostrand Reinhold.
- Morrison, R. F. (1987). Establishing a career. In R. F. Morrison & R. M. Vosburgh (Ed.) Career development for engineers and scientists, Ch. 9. New York: Van Nostrand Reinhold.
- Morrison, R. F. (1987). Delving into the unknown. In R. F. Morrison & R. M. Vosburgh (Ed.) Career development for engineers and scientists, Ch. 12. New York: Van Nostrand Reinhold.
- Pinciario, S. (1987). Lessons learned in developing a decision support system for managing the Navy's military personnel budget. Proceedings of the Twentieth Annual Hawaii International Conference on System Sciences, 1, 715-724.
- Robinson, C. (1987, Spring). Computerized hand-held instructional prototype (CHIP). Newsletter of the Military Education and Training Special Interest Group of the American Educational Research Association, 7(3).
- Rosenfeld, P., Doherty, L., & Carroll, L. (1987). Microcomputer-based organizational survey assessment: Applications to training. Journal of Business and Psychology, 1(4), 419-430.
- Silverman, J., Steuer, R. E., & Whisman, A. W. (1987). User control and multiple time path objectives in a manpower planning decision support system environment. In Sawaragi, Y., Inoue, K., & Nakayama, H. (Eds.). Toward interactive and intelligent decision support system, 1. Lecture notes in Economics and mathematical systems, 285. Berlin: Springer-Verlag.
- Thomas, P. J. (1987). Appraising the performance of women: Gender and the naval officer. In B. Gutek & L. Larwood (Eds.), Womans Career Development, Beverley Hills, CA: Sage.
- Wolfe, J. H. (1986). Computerized testing technology. In T. G. Sticht, F. R. Chang, & S. Woods (Eds.). Advances in reading/language research, 4, Greenwich, CNL JAI Press.

### **Presentations**

- Bamber, D. (1987, August). Knowledge-base validation in a collaborative expert system: Knowledge outlining. Paper presented at the Joint Meeting of the Fleet Command Center Battle Management Program and Pilot's Associate Meeting, Aspen, CO.
- Conner, H. (1986, November). The troubleshooting proficiency evaluation program for the enlisted personal individualized career system (EPICS). Paper presented at the 28th Annual Conference of the Military Testing Association, Mystic, CT.
- Conner, H. (1987, May) Troubleshooting proficiency evaluation program (TPEP) for the NATO sea sparrow surface missile system (NSSMS) (feasibility study). Paper presented at National Security Industrial Association, Luxembourg, Luxembourg.
- Cory, C. (1986, November). Computerized measurement of vigilance abilities. Paper presented at the 28th Annual Conference of the Military Test Association, Mystic, CT.

- Dickieson, J., & Rowe, M. W. (1986). The evolution of an information delivery system: Descendants of DELIS. In Chu, Haynes, Hoewel, Speckard, Stohr, and Sprague (eds.), Proceedings of the Nineteenth Hawaii International Conference on System Sciences, 426-433.
- Federico, P-A. (1987, March). A microcomputer-based battle management assessment system. Paper presented at the DOD/ETS Conference on Job Performance Measurement Technologies, San Diego, CA.
- Folchi, J. S. (1986, November). Communication of computerized adaptive testing results in support of ACAP. Paper presented at the 28th Annual Conference of the Military Testing Association, Mystic, CT.
- Hetter, R. D., & Segall, D. O. (1986, November). Relative precision of paper-and-pencil and computerized adaptive tests. Paper presented at the 28th Annual Conference of the Military Testing Association, Mystic, CT.
- James-Jones, G. (1986, November). Design and development of the ACAP test administration software. Paper presented at the 28th Annual Conference of the Military Testing Association, Mystic, CT.
- Kennington, J., Liang, T. T., Thompson, T. J., & Buclatin, B. (1987, May). Network models and solution strategies for Navy personnel assignment. Paper presented at ORSA/TIMS Joint National Meeting, New Orleans, LA.
- Laabs, J., & Berry V. (1987, March). Comparing different procedures for task selection. Paper presented at DoD/ETS Job Performance Measurement Conference, San Diego, CA.
- Laabs, J. (1987, March). Issues in the implementation of a job performance measurement program. Paper presented at DoD/ETS Job Performance Measurement Conference, San Diego, CA.
- Lewis, G. W., Trejo, L. J., Nunez, P., Weinberg, H., & Naitoh, P. (1987, August). Evoked neuromagnetic fields: Implications for indexing performance. Paper presented at the 6th International Conference on Biomagnetism, Tokyo, Japan.
- Liang, T. (1987, May). Monitoring assignment budgets. Paper presented at ORSA/TIMS Joint National Meeting, New Orleans, LA.
- Liang, T., & Thompson, T. J. (1987, Spring). A large-scale personnel assignment model for the Navy. Decision Sciences, 18(2), 234-249.
- Malkoff, D. B. (1987, October). The application of artificial intelligence to the handling of real-time sensor based fault detection and diagnosis. Paper presented at the Proceedings of the Eighth Ship Control System Symposium, Ministry of Defense, Directorate of Materiel, Royal Netherlands Navy.
- Mohr, D. A., Riedel, J. R., & Crawford, K. S. (1987, April). When initial success isn't enough: Resistance to diffusing subunit change. Paper presented at the Sixty-seventh Annual Convention of the Western Psychological Association, Long Beach, CA.

- Nugent, W. A. (1987, October). A comparative assessment of computer-based media for presenting job task instructions. Paper presented at the Annual Meeting of the Human Factors Society, New York, NY.
- Nugent, W. A. (1987, November). Bang for the buck: The beneficial effects of computer-based audio and graphics in performing job tasks. Paper presented at the Institute of Electrical and Electronic Engineers Automatic Testing Conference (AUTOTESTCON '87), San Francisco, CA.
- Pinciario, S. (1987, January). Lessons learned in developing a decision support system for managing the Navy's military personnel budget: The case of BOATS. Paper presented at the Twentieth Annual Hawaii International Conference on System Sciences, University of Hawaii, Kailua-Kona, HI.
- Pinciario, S. J. (1987, November). The development of the budget obligation analysis and tracking system (BOATS) and its role in military personnel, Navy (MPN) budget management. Paper presented at the Symposium for Financial Management Research in Government, Washington, DC.
- Rafacz, B. A. (1986, November). Development of the test administrator's station in support of ACAP. Paper presented at the 28th Annual Conference of the Military Testing Association, Mystic, CT.
- Sands, W. A. (1986, November). Computerized adaptive testing hardware/software development for the U.S. military: Introduction and overview. Paper presented at the 28th Annual Conference of the Military Testing Association, Mystic, CT.
- Schustack, M. W. (1987, April). Interface style and users' learning and performance: What's hard and what's easy and why. Paper presented at the Computer-Human Interaction 87 Conference.
- Schustack, M. W. (1987, September). How interface style influences user performance. Paper presented at NASA Ames Research Laboratory, Aerospace Human Factors Research Division.
- Silverman, J., Whisman, A., & Steuer, R. E. (1987, May). Embedding a manpower optimization model in a managerial environment. Paper presented at ORSA/TIMS Joint National Meeting, New Orleans, LA.
- Steuer, R. E., & Silverman, J. (1987, August). A combined Tchebycheff/reference point algorithm for interactive multiple objective programming. Paper presented at the Eleventh Triennial Conference on Operations Research, Buenos Aires, Argentina.
- Sympton, J. B. (1987, May). Extracting information from wrong answers in personnel testing. Presentation at the Personnel Testing Council of San Diego, San Diego, CA.
- Sympton, J. B. (1987, May). Modern approaches to measuring mental ability. Presentation to the Annual Regional Meeting of San Diego MENSA, San Diego, CA.
- Sympton, J. B. (1987, June). Application of a polychotomous IRT model to adaptive mental testing. Paper presented at the ONR Contractor's Conference on Model-based Psychological Measurement, Columbia, SC.

- Thompson, T. J. (1987, May). Issues in the development of personnel assignment models for the Navy. Paper presented at ORSA/TIMS Joint National Meeting, New Orleans, LA.
- Vogt, J. L., & Wulfeck, W. H. (1987, February). Automation of instructional development in the U.S. Navy. Paper presented at ASEE American Society of Engineering Education, College Industry Education Conference, Lake Buena Vista, FL.
- Wetzel, C. D. (1987, May). Software bridge for authoring systems. Presented at Joint Service CBI Meeting, Brooks Air Force Base, TX.
- Wolfe, J., Alderton, D., Cory, C., & Larson, G. (1987, March). Reliability and validity of new computerized ability tests. Paper presented at the DoD/ETS Job Performance Measurement Conference, San Diego, CA.

## DISTRIBUTION LIST

Space and Naval Warfare Systems Command (Historian)  
Chief of Naval Operations (Historian)  
Defense Technical Information Center (DTIC)

END

DATED

FILM

8-88

Dtic